



CITY OF DURHAM | NORTH CAROLINA

**Date:** July 5, 2011

**To:** Thomas J. Bonfield, City Manager  
**Through:** Theodore L. Voorhees, Deputy City Manager  
**From:** Donald F. Greeley, Director, Water Management  
Jerry F. Morrone, Engineering Supervisor  
**Subject:** US 70 Raleigh Interconnection Phase I – Triangle Grading and Paving, Inc. – Change Order #2

**Executive Summary:**

On December 6, 2010, City Council awarded a contract to Triangle Grading and Paving, Inc., to provide construction services for the Raleigh Interconnection US 70 – Phase I water transmission main project. The US 70 – Phase I project includes the installation of approximately 10,700 linear feet of 24" water line with associated appurtenances. The installation of this line requires the removal of all underground rock within the transmission main's alignment. During construction it has become apparent that significantly more rock is present within the project area than originally estimated in the bid, and additional rock excavation will be necessary. The Department of Water Management has negotiated a fair and reasonable lump sum price for all rock excavation outside the total bid price. The Department is recommending a change order with Triangle Grading and Paving, Inc to cover the cost of removing this additional rock.

**Recommendations:**

The Department recommends the City Council:

1. Authorize the City Manager to execute Contract Change Order #2 with Triangle Grading and Paving, Inc, for the US 70 Raleigh Interconnection Phase I Construction Contract in the amount of \$410,000.00, for a total contract cost not to exceed \$2,032,805.00, and for a time extension of 30 days, for a total contract time of 210 days.
2. Authorize the City Manager to negotiate and execute change orders for the contract provided that the cost of all change orders does not exceed \$162,195 and the total project cost does not exceed \$2,195,000.00.

**Background:**

The City of Durham Department of Water Management owns and operates six interconnections with other area utilities, including one interconnection with the City of Raleigh's water system on TW Alexander Drive. The interconnections currently in service provide each utility connected the ability to share water under the provisions established in interlocal agreements. The proposed interconnection on US 70 will provide a second connection to the City of Raleigh's water distribution system. This connection has been divided in to two phases, with Phase I connecting to existing City of Durham water infrastructure at the intersection of Miami Boulevard and Angier Avenue and extending to existing City of Durham water infrastructure at the intersection of Page Road Extension and US 70.

The Notice to Proceed for the US 70 Phase I project was issued on February 14, 2011. The Contractor performed rock boring and test pitting along the project alignment to delineate the areas where rock would be encountered and the quantity of rock excavation likely required. Based on this exploratory work plus geotechnical exploration performed prior to the issuance of contract documents for bid, significantly more rock is present in the project area than was in the rock excavation line item in the bid documents.

### **Issues and Analysis:**

The volume of rock excavation required is significantly in excess of the quantity originally bid. To complete the installation of the proposed water line using best practices while also keeping the project on schedule, additional money will be required to compensate the Contractor for additional rock excavation. The Department evaluated rock excavation unit price costs found on other similar unit price water transmission main installation projects performed under similar conditions. Using this evaluation, the Department negotiated a revised rock excavation lump sum cost with the Contractor. Based on the anticipated quantity of rock to be encountered on the remainder of the job, the new effective unit price of the rock is approximately \$115.00 per cubic yard, reduced from the \$200.00 per cubic yard bid.

### **Alternatives:**

There are three alternatives:

Alternative 1: Do not approve a Change Order to Triangle Grading and Paving's contract and complete the rock excavation with City staff. City personnel do not currently have the availability or resources to perform such a large amount of rock excavation in the time required, and self-performing the work could potentially generate warranty issues.

Alternative 2: Do not approve a Change Order to Triangle Grading and Paving's contract and delay the required rock excavation until the additional rock excavation can be re-bid to a qualified rock excavation subcontractor. Under this alternative, the Contractor would be compensated for rock excavation work already performed at the price included in the bid, and all additional rock excavation would be performed by the lowest bidder on the re-bid. Under this alternative, significantly more money will be paid to the current Contractor per cubic yard of rock excavated. The proposed Change Order includes a decrease in the unit cost of rock excavation. Re-bidding this portion of the work will result in significant project delays and coordination issues once the project has been re-started.

Alternative 3: Do not approve a Change Order to Triangle Grading and Paving's contract and use funds already authorized to complete the work. There are currently insufficient authorized funds available to complete the work at the bid price, under this alternative work would continue at the price bid for rock excavation until all available funds are exhausted. Continuing installation work until all available funds are exhausted would allow only a partial completion of the water line installation. The remaining water line installation work would be bid as part of the second phase of this interconnection. The completion of the work at the higher bid price will result in significant additional cost to the City for rock excavation. Additionally, if the full water line is not installed, the pressure test of the line to ensure proper installation would have to be completed through only two connection points to the existing water distribution system instead of the three connection points available if the entire line is installed. It is unlikely conditions exist where sufficient hydraulic grade is available in

the project area to pressure test the main through only two connections. Additional pumps would be required to pressure test the line at additional expense to the City.

**Financial Impacts:**

Funds for the US 70 Raleigh Interconnection Project are budgeted for in the Capital Improvement Program. There are currently funds available in project account 4100P760-731000-P0B0D for Change Order #2.

**SDBE Summary:**

This is a contract amendment and is not reviewed by the Department of Equal Opportunity/Equity Assurance for compliance with the Ordinance to Promote Equal Opportunities in City Contracting.